

## **Summary**

Subject of the invention is a device, comprising a planar optical waveguide, as part of a sensor platform, and, connected to said platform directly or by means of a sealing medium, a layer (g) (according to Figure 1), said layer forming either directly a tight seal or by means of the sealing medium a tightly sealing layer, said device comprising a multitude of recesses at least open towards the sensor platform, which form a corresponding multitude of sample compartments in a 2-dimensional arrangement, wherein in each of said sample compartments different biological or biochemical recognition elements, for the specific recognition and binding of different analytes, are immobilized in five or more discrete measurement areas (d) (according to Figure 1) in these sample compartments, wherein said measurement areas are in optical interaction with the excitation light emanating from said optical waveguide, as part of a sensor platform which forms a demarcation of said sample compartments, wherein said sample compartments are operable to be cleared from received sample or reagent solutions and to receive, in the following, optionally without washing steps, further sample or reagent solutions, which are supplied to the same said sample compartments.